

Daily GLOWBUGS

Digest: V1 #60

via AB4EL Web Digests @ SunSITE

Purpose: building and operating vacuum tube-based QRP rigs

[AB4EL Ham Radio Homepage @ SunSITE](http://www.4el.net)

Subject: glowbugs v1 #60
glowbugs Wednesday,

Wednesday, June 18 1997

Volume 01 : Number 060

Date: Tue, 17 Jun 1997 21:58:31 -0500 (EST)
From: "Roberta J. Barmore" <rbarmore@indy.net>
Subject: Advice on a pi-net

Hi!

To make a long story real short, WA9MFF, the neighbor across the alley, noticed my HF activity last week...on his TV! (And on cable, no less--blasted leaky system). (Hey, he copies noise-burst CW pretty well, enough to pick out a certain W5 call).

The little Jones breadboard O/P network does not discriminate against harmonics very well. It's not happy looking at a 50R low-pass filter, either. So I am working on yet another 6L6ish thing, this one to be in a metal case (drat!) with a real pi-network on the output. Had a look at Bob Dennison, W2HBE's take on this in ER #74, June of '95.

'2HBE's "1937 Transmitter" is a '42 job, rather than 6L6. No problem, right, the '42 likes a 3700R load in class C, 6L6 prefers about 3K, all one has to do is look at the ARRL's "cookbook" pi-net charts and scale accordingly.

Wrong! Either I can't calculate the inductance of a coil, or Bob's pi-net inductor values are high by a bit more than 1.5X. Or he went for a different loaded Q (ARRL uses 12, which sounds about right). Condenser values are near as needful, like within 1 per cent.

Anyone have a notion or two on this topic? I'm not hugely worried (not too hard to prune a coil!) but things aren't making much sense here. It's clear Dennison had his gadget working, so I've missed something. The error seems too big for the (imperfect) approximation we all use for calculating inductance of solenoid-would coils and the numbers I get square with the "Lightning LC Calculator" results.

73,
--Bobbi

PS: don't think 'MFF's an ogre, he waited 'til the end of the week to tell me, so I could get some operating in! It's just, well, *he's* the ham with call-letter plates and a big ol' beam, while my skywires don't show up hardly at all; so guess who gets the flack for TVI in the neighborhood....

Date: Tue, 17 Jun 1997 21:49:45 -0700
From: Dave <gekko95@ix.netcom.com>
Subject: Extra CW update....

Hello all,

I wanted to send a personal letter to each person who sent some encouraging or informing email, but there over 50 of them! So this is an open letter to all:

I PASSED 1(C), 4(A) AND B(B) AND GOT MY EXTRA TONIGHT!!!!!!

And I scored 100% on all three elements, to boot! All this time stressing over the code - I copied 100%, not just the parts that were on the test questions. I had been using that dopey ARRL code tape that uses 'perfect ratio' code, with groupings of ridiculous words that make no sense. But the test had a mild Farnsworth spacing, and sounded just like me on my bug! I started copying every single letter until I realized I was copying 100%. I only wrote a solid minute then stopped, and just took notes like I do when I'm on the air. All that stress for nothing!

Anyway, many thanks for all of the encouragement I got from the group. I helped a lot, and I appreciate it immensely.

73's and see ya on the LOWER 25 KHZ! I've waited 20 years for this!!!

Dave WB7AWK/AE (keeping my old call)

Date: Wed, 18 Jun 1997 12:03:57 -0500 (CDT)
From: mjsilva@ix.netcom.com (michael silva)
Subject: Re: Advice on a pi-net

Roberta wrote:

>...Wrong! Either I can't calculate the inductance of a coil, or Bob's
>pi-net inductor values are high by a bit more than 1.5X. Or he went
>for a different loaded Q (ARRL uses 12, which sounds about right).
>Condenser values are near as needful, like within 1 per cent.
> Anyone have a notion or two on this topic? I'm not hugely worried
>(not too hard to prune a coil!) but things aren't making much sense
>here.

Well, I'm curious. Can you post the values recommended in the article

so we can all do the calculator shuffle together?

73,
Mike, KK6GM

Date: Wed, 18 Jun 1997 14:59:23 -0400 (EDT)

From: rdkeys@csemail.cropsci.ncsu.edu

Subject: Re: Advice on a pi-net

>
> Roberta wrote:
>
> >...Wrong! Either I can't calculate the inductance of a coil, or Bob's
> pi-net inductor values are high by a bit more than 1.5X. Or he went
> for a different loaded Q (ARRL uses 12, which sounds about right).
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> >(not too hard to prune a coil!) but things aren't making much sense
> here.
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> Well, I'm curious. Can you post the values recommended in the article
> so we can all do the calculator shuffle together?

Good point, and I would also chime in that the antenna impedance into which the load is being delivered can affect the pinet values. It could also be that the original article just used what was available, and we all know ballparks of +/-25% will usually work fairly well. The point is that resonance must be found with the input side of the network, for whatever loadout value of capacitance is used. At that point the load is transferred. Rather than target specific design values, I tend to run with certain rules of thumb picked up over the years, and trim to suit. In my hands that has always worked practically as well as strict design values, and usually been within the +/-25% slop tolerance.

Hey, if it loads and the tube is not too red, and the FS meter reads output, you are there.

Also, are coil forms or stray capacitances playing any effect on the net capacitance and inductance values. Sometimes coil forms and the like will modify values by a fair amount, not previously planned for.

Bob/NA4G

Date: Wed, 18 Jun 1997 16:02:04 -0400

From: "Brian Carling" <bry@mnsinc.com>

Subject: WTB: T-R, HG-10 and DOW-KEY

Also needing a DOW-KEY relay 115V AC for SO-239 connection.

AND I need a Heath HG-10B or HG-10 VFO

Must ALL be reasonably priced

Thanks - Bry, AF4K

bry@mnsinc.com

*** 73 from Radio AF4K/G3XLQ Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com *
*** See the interesting ham radio resources at: *
** <http://www.mnsinc.com/bry/> *

Date: Wed, 18 Jun 1997 19:59:46 -0400 (EDT)
From: leebbo@ct.net (Leon Wiltsey)
Subject: hy 16 fooey

Hi Gang

boy am I dissapointed, got a h16 that was advertised as working.
just barely. On seven tonight when I finally fired it up. it was pretty
quiet only some s american comm stuff. Fired up the regen I built
and the cw was 5x9, hope it just needs some tubes, (those I can get)
ken gorden is sending me the manual so will try an alignment. But its
pretty sad when a 3 tube regen homebuilt whips the pants off in
sensitivity on a comm superhet. So I guess until I can get some sensitivity
out of my hy-16 I will be using my trusty regen. As I sit here typing this
I can read faint cw from the hy16 connected to a 40 m dipole. The regen
is connected to a hank of wire running to my sig gen and the cw is just
banging in. Oh well so much for rec advertised as working. it is but just!!!!!!
will let you know just what it took to get some decent sens.

THANK THE LORD FOR ALL YOU HAVE

68 yr old semidisabled senior
(stroke got my balance & hand to eye coordination)
ham agn as KF4RCL TECK+ (MUCH HAPPINESS)
BUILD MOST OF MY STATION EQUIP
SUB.BA & GB-- NO SOLID STATE

Leon B Wiltsey (Lee)
4600 Lake Haven BLVD.
Sebring, Fl. 33872

SEBRING FL. WHERE THERE IS NO QRM
FROM ANYTHING LOCAL

Date: Wed, 18 Jun 1997 21:34:09 -0400
From: "Brian Carling" <bry@mnsinc.com>
Subject: Re: Extra CW update....

YEAH!!!!!!!!!!!!!!

Way to go Dave!!!!!!

We're proud of you OM!
Now if I can just persuade K1LKY to do that too.....

On 17 Jun 97 at 21:49, Dave wrote:

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> Hello all,  
>  
> I wanted to send a personal letter to each person who sent  
> some encouraging or informing email, but there over 50 of  
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** E-mail to: bry@mnsinc.com *  
*** See the interesting ham radio resources at: *  
** http://www.mnsinc.com/bry/ *  
*****
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Date: Wed, 18 Jun 1997 22:47:23 -0500 (EST)
From: "Roberta J. Barmore" <rbarmore@indy.net>
Subject: Re: Advice on a pi-net

Hi!

Well, it's been asked and seconded, so it must be proper! Here's the dope:

'2HBE is running a '42 with 385V on the plate and loading to 52mA. I'm figuring load Z as plate volts over twice plate amps (Class C) and getting 3700R, or close. (RSGB uses 460*plate volts over plate mils, which is close enough the same thing).

Going to give the *raw* data here and let you folks work from it:
Cin is a 200pF variable of good design, likely 10:1 range
On 160, L is 46t #18 AWG closewound on a 1-5/8" form (ribbed mica-filled Bakelite) and Cout max is 2050pF

On 80, all but 33t of L are shorted (from the low-Z end as usual) and Cout max is 850pF.

On 40, all but 17t of L are shorted (as above), and Cout max is still at 850pF; min is 350pF.

- --end of raw data--

ARRL gives a handy chart, Cin/Cout/L for 160-10m and Zin from 2k to 8K in 500R steps, with Z out at 50R. RSGB thinks the reader has enough wit to work from Xl & Xc values, and gives two tables (one for 50R out, one for 75R out) of Zin in steps from 300 to 6K vs Xl, Xci & Xco. (FWIW, Xl is about 3% higher for 75R Zout). RSGB's data, when permuted for freq, work out within 1-2% of ARRL's, just what I would expect from those two groups.

My numbers for Bob's coil work out to about 1.7X the ARRL values! It's hard to chalk that up to coil-form effects, it's a bit high for "Kentucky windage" and it implies a very high Zin or...? Figured it both by direct calculation and using a couple of Lightning Calculators, and the answer's within 5% (not bad, that cardboard slide rule--I have both the modern one and the old circular one). Mr. Dennison is no fool--I just can't figure what he's up to!

I want to do a couple things, scale Zin down (a 6L6 at 450V and 70mA is more like 3000R) and possibly add 20m (the four-position 90-degree index bandswitch from MAI is itchin' for this, though I'll have to dry-transfer "160" over the position marked "10" on the dial plate that came with--yep, 80, 40, 20 and ten, oooh such surplus one finds!).

Soooo, it leads to wonder what Bob knows that I've missed.

Permuting the pi-net magic equations to work backwards is a possibility, especially since the only one that really needs it is Xl--but you have to have Cout to plug into it! Then it'd be an iterative hunt for two unknowns, Zin and Q. (An' me without BASIC on the present machine, too, grrrr). 'Spect there's more than one set of Rl/Q that "fits," which won't help matters, so thus I turn to the collective wisdom and experience of the List.

73,
--Bobbi

"If a hen and a half lays an egg and a half in a day and a half, how many eggs does one hen lay in one day? (Don't answer too fast!)"
[Figured *that* one, at least!]

End of glowbugs V1 #60

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Created by **Steve Modena, AB4EL**

Comments and suggestions to **modena@SunSITE.unc.edu**
